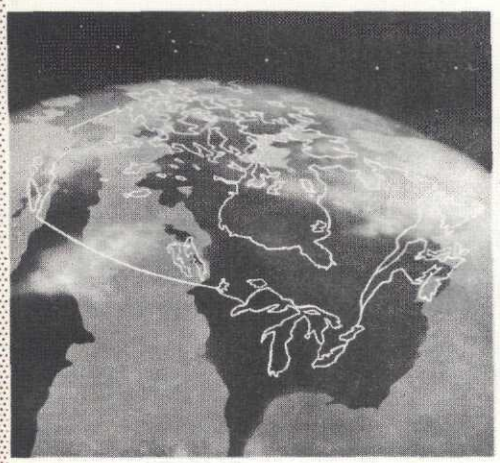

NFB FILM STUDY GUIDE

RICHES OF THE EARTH

PRODUCED BY THE NATIONAL FILM BOARD OF CANADA, 1954, WITH THE ASSISTANCE OF THE GEOLOGICAL SURVEY OF CANADA

COLOR -- 17 MINUTES

SUGGESTED USES: Intermediate and Senior Social Studies and Science.

Should prove particularly useful as an introduction to a study of mining in Canada.

OUTLINE OF CONTENTS

The film portrays in colorful animation how Canada's mineral resources have been created. Throughout eons of time, subterranean forces of inconceivable magnitude have altered the geological structure of the land. The surface of the earth has risen above the primeval sea and has sunk beneath it, each time changing the shape of the water bodies and the contours of the land masses, until the country has taken on its present configuration.

Cracks formed by the cooling of the layers of rock offered convenient channels into which mineral-bearing, super-heated water could rise. It was in these cracks that many of the valuable Canadian minerals were first deposited.

The sea again covered the land, but this time it contained billions of tiny living organisms. As they died, their bodies, falling in a steady rain, piled up layer upon layer on the ocean bottom. Under the ever-increasing pressure of their own weight, their bones became rock and their soft bodies, oil.

Water and land shifted. Climates changed. Vast prehistoric forests flourished, died, and dropped in decaying strata one upon the other. The pressure, thus steadily built up, squeezed the lowest layers into seams of glistening coal.

Water erosion was also at work carving deep gorges and remorselessly wearing away the softer rock surrounding the hidden particles of gold which settled in time into ancient gravel beds.

Like a giant bulldozer the polar icecap, not once but many times spread out of the north, scraping and furrowing the land. Ridges of glacial debris piled up before its relentless front. These ridges in many cases held back water from the melting ice to form lakes. When the ice finally retreated, layers of glacial silt were left behind to form thousands of square miles of fertile farming land.

Modern man has learned how to discover and use the riches of the earth: how to probe downward with drills to unlock the storehouses of oil, coal, iron, gold, uranium; how to grow crops of all kinds on the spreading layers of glacial silt; and how to use the water which promises a perpetual source of power.

GENERAL CONCEPTS

(a) Canada has taken on its present shape only after many prehistoric surface alterations brought about by fire, wind, water and ice.

(b) While taking on its familiar form, Canada has been subject to mighty subterranean forces which have been instrumental in creating a vast, though not unlimited storehouse of minerals.

(c) Water is an expendable resource and by its power Canadians are able to make fuller use of their natural resources.

(d) The present is but a fleeting instant in all of time, and the processes demonstrated in the film are continuing ones.

OVER

CLASS PREPARATION

Seek out various metals about the room: for example, steel in desks or radiators, nickel and silver in coins, gold in rings and watches. The class should recognize these as minerals. Ask for the names of other kinds of minerals such as coal and oil.

Ask where the minerals came from.

Suggest that Canadians are fortunate in possessing these natural resources in large quantities.

Pose the question of how the minerals got to be where they are. Tell the class that the film answers this question.

WORDS WHICH MAY CAUSE DIFFICULTY

1. "...through the cracks poured *super-heated* water..."
2. "...another ancient continent *subsides* beneath the sea..."
3. "...rises slowly through the *porous sediments*..."
4. "...trapped by *impervious* rock..."
5. "...*vaults* where the oil collects..."
6. "...beneath the *enigmatic*, ever-changing surface..."
7. "...like a *rasp* they ground the rocks..."
8. "...layer upon layer of *glacial silt*..."

QUESTIONS ANSWERED IN THE FILM

1. How were minerals deposited in the ancient rocks?
2. What minerals were deposited by super-heated water?
3. What became of the soft bodies of the tiny sea creatures?
4. How was coal formed?
5. How did gold find its way into the gravel beds of ancient rivers?
6. What are three results of the movement of the ice cap?
7. What is glacial silt?
8. What workers would find glacial silt of greatest use?
9. Which natural resource is an aid in making use of the others?
10. What are the four great forces that have moulded the surface of our country?
11. Has the rising and falling of the land stopped? Explain.

SUGGESTED FURTHER ACTIVITIES

1. On a map of Canada mark the areas in which the following minerals are found. Use suitable symbols.
   iron nickel coal gold uranium oil asbestos
2. Find out in which of the six main geographical regions of Canada these minerals are chiefly located.
3. Investigate the various methods of mining used in Canada.
4. Study of different classes of rocks, such as sedimentary, metamorphic, igneous. Interested pupils might like to prepare a collection of rocks.

RELATED VISUAL AIDS

Films:

MOUNTAINS OF THE WEST (NFB 1954)
THE GREAT CANADIAN SHIELD (NFB 1945)

Filmstrips:

ASBESTOS (NFB 1954)
FROM THE GROUND UP (NFB 1952)
MAPS OF CANADA -- MINERAL AREAS (NFB 1952)
OUR RESOURCES -- MINING (3 parts) (NFB 1952)
THE ONTARIO HARD ROCK MINER (NFB 1954)

REFERENCES

Canada and Her Neighbours *(Taylor et al)*
Social Studies for Canadians *(Cornish et al)*
We Discover Our World -- Book III *(Beauchamp et al)*

•••••••

Information and Promotion Division
National Film Board of Canada
Ottawa 1956